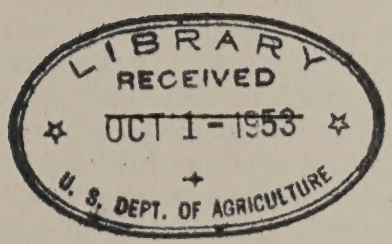
C A L I F O R N I A 6 M O D O C

FIELD APPRAISAL ANALYSIS



Prepared by
Field Appraisal Section
Program Analysis Division
RURAL ELECTRIFICATION ADMINISTRATION

Field Appraisal
Completed in
May 1953

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July 23, 1953

Field Appraisal Section
Program Analysis Division

SUMMARY AND CONCLUSION
CALIFORNIA 6 MODOC

AREA CHARACTERISTICS

The service area is located on the Klamath Pitt Plateau in the extreme northeastern part of California and south Central Oregon. For the most part, the service area lies in Modoc County, California, and Lake County, Oregon. From 1940 to 1950 there was, in these two counties, a 9 percent increase in total population, a 3 percent decrease in farm population, a 10 percent increase in nonfarm population, and a 24 percent increase in urban population. The major source of agricultural income in 1949 was from the sale of livestock and livestock products. Production of crops is important, especially in Modoc County. The trend, however, is toward a decrease in importance of field crops and increase in importance of livestock enterprises. The number and average size of farms in the area have been increasing. Average value of land and buildings was $39,822 in 1950, or 87 percent higher than in 1945. Gross income from the sale of farm products in 1949 averaged $11,695 in Modoc County and $12,699 in Lake County. In 1950, about 87 percent of the farms were owned in full or in part. Nineteen percent of the farm operators worked 100 or more days off the farm, and 17 percent reported other income of the family exceeding the value of farm products sold in 1949. Sale of forest products supplements income from crops and livestock. Commercial lumbering operations provide a source of nonfarm employment. The topography is characterized by valleys and mountains ranging in elevation from 4,000 to 9,000 feet. Soils range from alluvial silt in the valley bottoms to rocky lava soils on the mountain slopes.

ULTIMATE NUMBER OF CONSUMERS

On March 31, 1953, this cooperative was serving a total of 1,733 consumers. The manager has estimated that in 1963 a total of 2,020 consumers will receive service. This appraisal and analysis tend to support the manager's estimates.

ESTIMATED FUTURE CONSUMPTION OF ELECTRICITY

This system was energized in 1938. Since 1939, average monthly farm consumption increased from 71 kwh to 461 kwh in 1952. This is an increase of 30 kwh in average monthly usage for each year. Farm consumers indicated that they expect to increase their use of electricity 23 percent by 1956. During the same period, nonfarm consumers indicated an increase of 9 percent, and town residential consumers indicated an increase of 16 percent. About 95 percent of the indicated increase in use is expected to occur in the household.

Active competition with LP gas and the supply of wood for use as a fuel are deterrents to future use of electricity in the area. The survey disclosed that 45 percent of the present consumers and 100 percent of the potential consumers

were using gas for one or more purposes. Six percent of the present consumers and 25 percent of the potential consumers, however, have indicated that they plan to discontinue use of LP gas.

Based on factors believed to be significant, this analysis leads to the following average monthly estimates, which are certified as being reasonable and may be expected to be attained in the years specified.

Class of Consumer	Calendar Year 1952	1955	1958	1963
Farm	461	555	625	700
Nonfarm Residential	346	425	480	530
Town Residential	241	320	355	400
Seasonal	42	50	55	60
Small Commercial	592*	940	975	1,040
Public Buildings	--	30	40	50
Street and Highway Lighting	431	490	500	510
Irrigation (annual) (25 HP)	14,498	18,000	19,000	20,000
Large Commercial (annual)				
Harper and Stevenson Sawmill(25KW)	6,830	7,000	7,000	7,000
Potter Lumber Co. (80 KW)	8,152)			
Potter Lumber Co. (90 KW)	10,160)	18,000	18,000	18,000
Edgerton Planing Mill (110 KW)	179,760	150,000	150,000	150,000
Edgerton Sawmill (300 KW)	268,201	220,000	220,000	220,000

* Includes Public Buildings.

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July 23, 1953

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Program Analysis Division

ANALYSIS OF BASIC FACTORS RELATED TO THE RURAL ELECTRIFICATION LOAN FOR CALIFORNIA 6 MODOC

This analysis of the probable future consumption of electricity by consumers of the Surprise Valley Electrification Corporation, with headquarters at Alturas, California (Figure 1), is based on a field study conducted by Vergil Bufford, Agricultural Economist, Field Appraisal Section, Program Analysis Division, and was completed in May 1953. This analysis was prepared by William B. Kingree, Agricultural Economist, Field Appraisal Section, Program Analysis Division. The field work consisted primarily of interviews with 103 served and prospective consumer units. Of these, 49 were served farm consumers, 7 were served nonfarm consumers, 43 were served town consumers, 3 were potential farm consumers, and 1 was a potential town consumer.1/ In addition, local bankers and agricultural leaders were consulted as to local economic trends and their estimates of the future for the area with respect to the use of electric power.

ULTIMATE NUMBER OF CONSUMERS

On March 31, 1953, the cooperative was serving a total of 1,733 consumers. The manager has estimated that a total of 2,020 consumers will be served in 1963 (Figure 2). This is an increase of approximately 17 percent over those presently receiving service. The ultimate number, according to the manager, is based on present boundary agreements and includes those consumer units anticipated due to growth in the area, as well as those presently served who are expected to remain.

Table VII shows that the population of Modoc and Lake Counties has increased steadily during the past 30 years. At the same time, the number of farms has fluctuated upward, and the average size of farms has been increasing. Average farm income in this area over a period of years has been a factor in encouraging people to remain in the area. In addition, power costs have decreased steadily. A consideration of these facts tends to support the manager's estimate as being reasonable.

1/ Respondents in the survey were selected at random and comprise tabular list samples of consumer units at the following sampling rates: farm consumers 6 percent, town consumers 8 percent, nonfarm consumers 8 percent, and applicants for electric service 6 percent.

NATURE OF PRESENT AND INDICATED FUTURE CONSUMPTION OF ELECTRICITY AS REVEALED BY THE SURVEY

TABLE I

INDICATED MONTHLY KWH CONSUMPTION[a]

Consumer Class	Present	Future[b]	Percent Increase
Farm	427	524	23
Nonfarm	396	432	9
Town Residential	255	295	16

a/ Based on indications by respondents in the survey and average energy requirements as determined by REA on a country-wide basis. Farm consumers in the survey were using electricity at 115 percent of the average rate established by REA on a country-wide basis. Nonfarm consumers were using 101 percent, and town residential consumers were using 111 percent of the average.

b/ Based on what respondents expect to add in 3 years.

Not included in Table I were data obtained from four potential consumers listed in the files of the cooperative as "Applicants for Service." The three potential farm consumers indicated that their initial average monthly consumption will be 312 kwh, while the potential town residential consumer indicated that his initial average monthly consumption will be 207 kwh. A comparison of these indicated averages with actual averages in Tables II and III shows that it probably would take 3 and 4 years, respectively, for potential farm and town residential consumers to achieve an average comparable to that of presently served farm and town residential consumers.

Historical consumption records for farm, nonfarm, and town residential consumers in the survey indicate a rising average consumption. Farm consumers added since 1946 have attained initial averages much higher than those connected over a longer period, while at the same time the increment of nonfarm and town residential consumers have attained initial averages which show a gradual increase over those connected during the first years of the system's existence. This is shown in Tables II and III. It is evident from Tables I, II, and III that consumers are using more than the average kwh per appliance as determined by REA for the country at large.

TABLE II

AVERAGE MONTHLY KWH CONSUMPTION OF 48 FARM CONSUMERS

Total Number Years With Electricity	Number of Schedules	Average Kwh Consumption Per Month '38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	'51	'52
15	2	44	64	88	96	107	86	100	106	116	203	209	483	365	544	440
14	4	--	62	81	94	103	94	95	94	98	313	362	498	456	615	645
13	1	--	--	85	79	109	100	107	121	116	96	84	139	134	139	150
12	2	--	--	--	82	87	93	94	115	127	155	139	216	423	550	606
11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9	2	--	--	--	--	--	--	100	113	159	150	218	446	940	681	1049
8	2	--	--	--	--	--	--	--	127	307	347	434	479	559	607	523
7	3	--	--	--	--	--	--	--	--	66	71	132	134	201	121	136
6	3	--	--	--	--	--	--	--	--	--	500	506	451	495	539	552
5	3	--	--	--	--	--	--	--	--	--	--	514	529	564	613	606
4	4	--	--	--	--	--	--	--	--	--	--	--	249	365	306	383
3	10	--	--	--	--	--	--	--	--	--	--	--	--	378	419	515
2	9	--	--	--	--	--	--	--	--	--	--	--	--	--	457	466
1	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	258
Weighted Average		44	63	84	90	101	93	98	109	133	251	318	374	432	460	490

TABLE III

AVERAGE MONTHLY KWH CONSUMPTION
OF 41 NONFARM AND TOWN RESIDENTIAL CONSUMERS

Total Number Years With Electricity	Number of Schedules	Average Kwh Consumption Per Month '38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	'51	'52
15	4	53	71	74	86	100	108	111	119	137	124	202	177	202	84	310
14	4	--	98	137	107	104	145	192	165	187	245	243	355	388	420	469
13	2	--	--	91	98	90	74	97	96	98	101	206	285	307	442	557
12	1	--	--	--	68	62	68	70	80	82	80	68	47	62	72	71
11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8	1	--	--	--	--	--	--	--	60	135	153	149	212	206	227	452
7	3	--	--	--	--	--	--	--	--	277	221	161	198	320	389	396
6	3	--	--	--	--	--	--	--	--	--	146	292	284	287	218	230
5	3	--	--	--	--	--	--	--	--	--	--	118	302	450	484	425
4	3	--	--	--	--	--	--	--	--	--	--	--	66	83	153	169
3	4	--	--	--	--	--	--	--	--	--	--	--	--	438	364	400
2	5	--	--	--	--	--	--	--	--	--	--	--	--	--	117	112
1	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	213
Weighted Average		53	85	103	94	96	112	134	122	169	167	196	229	301	272	299

A saturation of electrical appliances and equipment measured in terms of the percent of consumers presently having them and a corresponding percent anticipated in the future was compiled from field schedules of presently connected consumers. The difference in saturation, as revealed by the increase in percentage points, was converted to future kwh requirements per 100 consumers for each appliance and piece of equipment. This tabulation is shown in Table IV.

TABLE IV

PRESENT AND INDICATED SATURATION OF ELECTRICAL APPLIANCES AND EQUIPMENT AND CORRESPONDING INDICATED INCREASES IN KWH USAGE OF FARM, NONFARM AND TOWN RESIDENTIAL CONSUMERS

Appliance or Equipment	Farm: Percent of Consumers[A]: Presently Using	Farm: Percent of Consumers[A]: Indicating Future Use	Farm: Increase[B]: Percentage Points	Farm: Increase[B]: KWH Usage Per 100 Consumers	Nonfarm and Town Residential: Percent of Consumers[A]: Presently Using	Nonfarm and Town Residential: Percent of Consumers[A]: Indicating Future Use	Nonfarm and Town Residential: Increase[B]: Percentage Points	Nonfarm and Town Residential: Increase[B]: KWH Usage Per 100 Consumers
Air Compressor	10	10	—	—	2	2	—	—
Battery Charger	6	10	4	48	2	2	—	—
Bean Pot	—	—	—	—	2	2	—	—
Blanket	20	22	2	300	28	30	2	300
Branding Iron	—	2	2	4	—	—	—	—
Brooder (Hover)	20	24	4	420	6	8	2	198
Brooder (Battery)	2	2	—	—	—	—	—	—
Churn	6	6	—	—	—	—	—	—
Clock	65	67	2	36	66	66	—	—
Clothes Drier	10	26	16	11,200	10	20	10	7,000
Cream Separator	16	16	—	—	—	—	—	—
Deep Fat Fryer	—	—	—	—	2	2	—	—
Dishwasher	2	8	6	180	4	4	—	—
Drill Press	37	41	4	48	8	10	2	24
Elevator - Grain	2	2	—	—	—	—	—	—
Fan (Cen. Hot Air)	6	6	—	—	2	2	—	—
Fan (Exhaust)	6	6	—	—	8	12	4	60
Fan (Household)	14	18	4	60	12	12	—	—
Fence	2	2	—	—	—	—	—	—
Food Mixer	65	67	2	50	52	56	4	100
Forge	2	4	2	24	—	—	—	—
Garden Watering	59	63	4	300	46	50	4	300
Grindstone	2	2	—	—	—	—	—	—
Heating Pad	35	35	—	—	32	32	—	—
Home Freezer	49	69	20	18,000	24	34	10	9,000
Hot Plate	12	12	—	—	22	24	2	140
House Heating	10	10	—	—	4	4	—	—
Iron	92	92	—	—	88	88	—	—
Jointer	4	4	—	—	2	2	—	—
Lathe	6	6	—	—	6	6	—	—

Appliance or Equipment	Farm: Percent of Consumers[A]: Presently Using	Farm: Percent of Consumers[A]: Indicating Future Use	Farm: Increase[B]: Percentage Points	Farm: Increase[B]: KWH Usage Per 100 Consumers	Nonfarm and Town Residential: Percent of Consumers[A]: Presently Using	Nonfarm and Town Residential: Percent of Consumers[A]: Indicating Future Use	Nonfarm and Town Residential: Increase[B]: Percentage Points	Nonfarm and Town Residential: Increase[B]: KWH Usage Per 100 Consumers
LIGHTING								
Beef Cattle Barn	8	10	2	24	—	—	—	—
Bunk House	24	26	2	30	—	—	—	—
Cave or Spring House	2	4	2	10	2	2	—	—
Garage	23	35	12	96	16	24	8	64
General Barn	45	53	8	192	6	6	—	—
Hog Barn	2	2	—	—	—	—	—	—
House	98	98	—	—	100	100	—	—
Milk House	6	6	—	—	2	2	—	—
Other Buildings	43	47	4	48	22	26	4	48
Poultry Brooder House	4	6	2	10	—	—	—	—
Poultry Laying House	18	24	6	210	4	10	6	210
Shop	35	39	4	48	8	10	2	24
Yard	53	59	6	108	12	14	2	36
Livestock Watering	6	8	2	360	2	2	—	—
Mangle (Ironer)	12	16	4	480	8	10	2	240
Milk Cooler	2	2	—	—	—	—	—	—
Milking Machine	6	6	—	—	2	2	—	—
Organ	—	—	—	—	2	2	—	—
Percolator	41	41	—	—	38	42	4	240
Planer	2	2	—	—	2	2	—	—
Power Saw	37	39	2	24	14	14	—	—
Pressure System (Less Than 22')	2	10	8	1,440	2	4	2	360
Pressure System (Greater Than 22')	71	75	4	960	54	58	4	960
Radio	98	100	2	200	98	98	—	—
Range	41	53	12	14,400	22	26	4	4,800
Refrigerator	90	96	6	2,160	86	86	—	—
Refrigerator (Walk-in)	8	8	—	—	4	4	—	—
Roaster	18	18	—	—	12	12	—	—
Sander	—	—	—	—	2	2	—	—
Seed Cleaner	4	4	—	—	—	—	—	—
Sewing Machine	41	41	—	—	30	30	—	—
Soldering Iron	6	6	—	—	4	4	—	—

Appliance or Equipment	Farm: Percent of Consumers A/: Presently Using	Farm: Percent of Consumers A/: Indicating Future Use	Farm: Increase B/: Percentage Points	Farm: Increase B/: KWH Usage Per 100 Consumers	Nonfarm and Town Residential: Percent of Consumers A/: Presently Using	Nonfarm and Town Residential: Percent of Consumers A/: Indicating Future Use	Nonfarm and Town Residential: Increase B/: Percentage Points	Nonfarm and Town Residential: Increase B/: KWH Usage Per 100 Consumers
Space Heater, Portable	43	45	2	140	30	32	2	140
Television	—	35	35	12,600	—	28	28	10,080
Toaster	80	80	—	—	70	74	4	140
Tool Grinder	24	30	6	150	10	14	4	100
Vacuum Cleaner	63	63	—	—	58	60	2	40
Valve Grinder	2	2	—	—	—	—	—	—
Waffle Iron	73	73	—	—	58	60	2	50
Washing Machine	92	96	4	140	92	92	—	—
Water Heater (Pressure Type)	2	2	—	—	—	—	—	—
Water Heater With Bath	51	67	16	48,000	40	44	4	12,000
Water Heater Without Bath	4	4	—	—	—	—	—	—
Welder	8	10	2	150	—	—	—	—
Wood Saw	2	2	—	—	—	—	—	—

A/ Based on indications of presently connected consumers.

B/ Based on average energy requirements as determined by REA. Data do reflect instances where more than one of the same appliance exists per consumer. These cases are rare and do not affect the over-all pattern materially.

ECONOMIC CHARACTERISTICS

U. S. Census data on Modoc County, California, and Lake County, Oregon, indicate that there was a 9 percent increase in the total population during the period 1940-1950. Farm population decreased by 3 percent, while the nonfarm population increased by 10 percent, and urban population increased by 24 percent.

Approximately one-fourth of the land area in the two counties was classified as farm land in 1950. Of the total farm acreage, about 78 percent was classified as land used for pasture.

From 1945 to 1950 the number of farms in the two counties increased by 21 percent, while the average size of farms in Modoc County increased by 36 percent and in Lake County by 13 percent. The average value of land and buildings in 1950 was $39,822, as compared with $21,283 in 1945. Compared with the State of California, Modoc County in 1950 had 10 percent less of the land area in farms, a 3 percent higher valuation of land and buildings, and about a 200 percent greater average size of farms. Lake County, compared with the State of Oregon, in 1950 had 10 percent less of the land area in farms, a 90 percent higher valuation of land and buildings, and a 760 percent greater average size of farms.

Average gross farm income in Modoc County was $6,423 in 1944 and $11,695 in 1949, as compared with the California State average of $10,077 in 1944 and $12,699 in 1949. In Lake County, average gross farm income was $5,913 in 1944 and $13,772 in 1949, as compared with the Oregon State average of $3,792 in 1944 and $4,982 in 1949. In 1949, the sale of livestock and livestock products accounted for 52 percent of the farm income in Modoc County, as compared with 39 percent in 1944, while in Lake County the sale of these products accounted for 85 percent of the farm income in 1949, as compared with 77 percent in 1944. Sale of forest products accounted for less than 1 percent of the farm income in Modoc County and about 2 percent in Lake County in 1949. Receipts from crops accounted for the remainder of the income in both counties in 1949.

Farms reporting livestock in Modoc County in 1950 had averages of 139 cattle, 16 hogs, 203 sheep, and 45 chickens, while in Lake County averages of 208 cattle, 12 hogs, 407 sheep, and 54 chickens were reported. Although livestock farming predominates, production of field crops is important, especially in Modoc County. Average yields per acre for the major crops in the two counties are: wheat, 12 bushels; oats, 21 bushels; barley, 42 bushels; hay, 1 ton; Irish potatoes, 339 bushels. With the exception of barley, average yields for these crops in the two States rank above those given for the counties.

The lumber industry provides a source of nonfarm employment for residents of the area, as well as a source of farm income from the sale of timber. Ponderosa pine, lodgepole pine, white fir, oak, and aspen are the important species of trees found in the area.

In 1950, about 87 percent of the farms in the two counties were owned in full or in part. In 1945, 94 percent of the farm operators, as compared with 87 percent in 1950, resided on the farm they operated. Forty percent of the farmers in 1949,

as compared with 13 percent in 1944, reported working off the farm, while 19 percent in 1949, as compared with 9 percent in 1944, reported working 100 or more days off the farm. About 17 percent of the operators reported other income of the family exceeding the value of farm products sold in 1949.

Deposits of copper, gold, pumice, perlite, clay, and mercury have been reported in the area. None of these minerals are productd on a commercial scale. Volcanic tuss, which is used for construction, and mineral water are found in Modoc County.

According to the appraiser, banks operating in the area were branches of large houses and were unable to furnish data on loans and discounts. The bankers indicated to the appraiser, however, that credit was readily available to farmers and ranchers in the service area. During the calendar year 1952, the Modoc National Farm Loan Association made 7 loans totaling $49,200. Seven applications for loans totaling $89,500 were on file in the office of the association on December 31, 1952.

PHYSICAL CHARACTERISTICS

The service area is located on the Klamath Pitt Plateau in the extreme northeastern part of California and south central Oregon. The topography is characterized by valleys and mountains ranging in elevation from 4,000 to 9,500 feet. The mountains are snowcapped during the winter, and on protected slopes during seasons of normal precipitation, snow frequently lasts the year round. Drainage is supplied by many perennial streams and small intermittent creeks. Some local areas are subject to ponded drainage or seepage from higher land; consequently, they are poorly drained.

Numerous series of soil are found in the area, ranging from alluvial silt in the valley bottoms to gray alkali soils developed under conditions of poor drainage, to rocky lava soils.

Average annual precipitation in the two counties is 11 inches with 35 percent falling during the months of May through October. The growing season, ranging from 77 days at one locality in Modoc County to 161 days at another locality in Lake County, averages 114 days.

ANALYSIS OF FUTURE CONSUMPTION

This system was energized in 1938. Since 1939, average monthly farm consumption increased from 71 kwh to 461 kwh in 1952. This is an increase of 30 kwh in average monthly usage for each year. Table II shows that new consumers are being added at levels of consumption of from 6 to 10 times that of the initial consumption of earlier consumers.

If consumption is to increase at the rate indicated in Table I, we might expect an average monthly farm figure of 567 kwh (461 x 1.23). The average monthly nonfarm figure would be 377 kwh (346 x 1.09), and the average monthly town residential figure would be 280 kwh (241 x 1.16). To achieve these increases, the specific additional kwh resulting from indicated future saturation of appliances and equipment as shown in Table IV must be attained.

Approximately 95 percent of the indicated increased use for farm consumers would need to occur in the household (Table V). Moreover, 70 percent of the indicated increase would need to occur as a result of the addition of water heaters, home freezers, and ranges.

There are other factors which must be considered in arriving at estimates of electric consumption. Among these are (1) the extent to which LP gas competition is likely to reduce the indicated future increases in electrical usage, and (2) other related economic trends and their impact upon the indicated future consumption.

TABLE V

INDICATED AND ESTIMATED KWH USAGE, FARM CONSUMERS BY CHARACTER OF LOAD PER 100 CONSUMERS[a]

Use	Indicated Future Saturation	Indicated Increase	Percent of Indicated Increase	Estimated Increase	Present Use	Estimated Future Total
Major Household Uses						
Water Heater	71	55,200	42.6	44,160	200,790	244,950
Home Freezer	69	20,700	16.0	18,630	56,925	75,555
Range	53	16,560	12.8	13,248	62,100	75,348
Television Receiver	35	14,490	11.2	7,245	---	7,245
Clothes Drier	26	12,880	9.9	10,304	8,050	18,354
Refrigerator	96	2,484	1.9	2,360	41,400	43,760
Pressure System (less than 22')	10	1,656	1.3	1,573	414	1,987
Major Productive Uses	--	3,418	2.6	3,247	44,720	47,967
All Other Uses	--	2,229	1.7	2,118	174,897	177,015
Total		129,617	100.0			
Estimated annual average increase (total) in kwh consumption per 100 consumers - 1956				102,885		692,181
Estimated annual average increase (total) in kwh consumption per consumer - 1956				1,029		6,922
Estimated monthly average increase (total) over a 3-year period - 1953-1956				86		577

a/ Adjusted. Appliance usage and amount of electricity required is 115 percent of the average for the United States as determined by REA.

TABLE VI

STATUS OF LP GAS USE OF 95 RESPONDENTS REPORTING IN THE SURVEY

Consumers' Position With Respect to Use of Gas	Number in Survey	Percent of Total
Not using and not planning to use	51	54
Not using but planning to use	1	1
Presently using	43	45
		100
Used for:		
Cooking	39	
Water Heating	15	
House Heating	3	
Refrigeration	3	
Planning to change to electricity in the future	6	6

Table VI shows that 45 percent of the consumers are presently using LP gas for one or more purposes. Six percent have indicated their intention to change to electricity while 1 percent indicated they were planning to use gas in the future. Two-fifths of the future indicated load will be in active competition with LP gas. Of the 4 potential consumers, all were using LP gas and only 1 indicated that he planned to change to electricity.

The retail rate schedule in effect at the time of the appraisal is as follows:

Farm and Home Service

First 90 kwh per month	@ $5.00 (minimum)
Next 50 kwh per month	@ 0.035 per kwh
Next 120 kwh per month	@ 0.025 per kwh
Over 260 kwh per month	@ 0.015 per kwh

Farm and Home Service with Storage-Type Water Heater

With Electric Range - After first 100 kwh, next 300 kwh @ $0.01 per kwh

Without Electric Range - After first 200 kwh, next 300 kwh @ $0.01 per kwh

Trends in the area (Table VII) show that the service area is increasing in importance both relatively and absolutely. Population in the two counties increased by 27 percent during the period 1930 to 1950. During the same period, the number of farms fluctuated upward by 11 percent. Average farm income in the area in 1949 was about equal to the California State average and two and one-half times as large as the Oregon State average. Average value of land and buildings in the area in 1950 was almost equal to the California State average and was almost twice as much as the Oregon State average. Power costs have decreased steadily from 1942 to 1952, while at the same time average consumption has shown an erratic increase.

TABLE VII

TRENDS RELATED TO THE RATE OF INCREASE IN USE OF ELECTRIC POWER

Item and Relationship	Trend						
Population	1920	1930	% Change 1920-30	1940	% Change 1930-40	1950	%Change 1945-50
Modoc County	5,425	8,038	+48	8,713	+ 8	9,678	+11
Lake County	3,991	4,833	+21	6,293	+30	6,649	+ 6
Counties Combined	9,416	12,871	+37	15,006	+17	16,327	+ 9
Index of Change in population, 1940=100	63	86		100		109	
Number of Farms	1930	1935	% Change 1930-35	1940	% Change 1935-40	1945	% Change 1940-50	1950	%Change 1945-50
Modoc County	621	702	+13	686	- 2	583	-15	823	+41
Lake County	485	513	+ 6	484	- 6	433	-11	408	- 6
Counties Combined	1,106	1,215	+10	1,170	- 4	1,016	-13	1,231	+21
Index of Change in number of farms, 1940 = 100	95	104		100		87		105	
Average Income From All Farm Products Sold				1939		1944		1949	
Modoc County				$3,666		$6,423		$11,695	
Lake County				3,225		5,913		13,772	
Combined Average				3,490		6,168		12,734	
Index of Average Income, 1939 = 100				100		177		365	
Average Value of Land and Buildings	1935			1940		1945		1950	
Modoc County	$14,162			$16,690		$19,789		$41,704	
Lake County	12,264			13,860		22,777		37,939	
Combined Average	13,213			15,275		21,283		39,822	
Index of Average Value, 1940 = 100	86			100		139		261	

Cost of Purchased Power	1942	1944	1946	1948	1950	1951	1952
California 6 Modoc	0.86¢	0.83¢	0.78¢	0.67¢	0.64¢	0.63¢	0.63¢
All Co-ops in California	0.94¢	0.92¢	0.94¢	0.80¢	0.75¢	0.73¢	0.73¢
All Co-ops in Oregon	0.91¢	0.65¢	0.58¢	0.46¢	0.39¢	0.38¢	0.38¢

Average Monthly KWH Consumption Per Farm Consumer	1941	1943	1945	1948	1950	1951	1952
California 6 Modoc	110	121	147	248	334	386	461
2 Neighboring Co-ops	79	102	120	209	267	307	350
Ratio of California to Neighboring Co-ops	1.392	1.186	1.225	1.187	1.251	1.257	1.317

Considering the present use and probable continued use of LP gas in the service area, the supply of wood for use as a fuel, and the general observation that, on a country-wide basis, respondents' indications in the past regarding future usage of electricity have been optimistic, the attainment of the indicated consumption within a 3-year period appears to be unlikely at this time. On the basis of related facts, it is estimated that within 3 years 80 percent of the indicated increase for water heaters, ranges, and clothes driers will be attained. Ninety percent of that attributed to home freezers, 50 percent attributed to television receivers, and 95 percent to the remaining uses are also expected to be realized. Kilowatt-hour increases estimated at these rates of increase are shown in Table V.

The appraiser was of the opinion that consumers had a relatively high average consumption for the following reasons: (1) High farm and per capita income in the area, (2) dry seasons which accentuate the demand for irrigation, (3) cold, damp weather during the winter months which increases the demand for clothes driers, and (4) an active educational program in power use carried on by the cooperative management.

Based on factors believed to be significant, this analysis leads to the following average monthly estimates, which are certified as being reasonable and may be expected to be attained by the years specified:

Class of Consumer	Calendar Year 1952	1955	1958	1963
Farm	461	555	625	700
Nonfarm Residential	346	425	480	530
Town Residential	241	320	355	400
Seasonal	42	50	55	60
Small Commercial	592*	940	975	1,040
Public Buildings	--	30	40	50
Street and Highway Lighting	431	490	500	510
Irrigation (annual) (25 HP)	14,498	18,000	19,000	20,000
Large Commercial (annual)				
Harper and Stevenson Sawmill (25 KW)	6,830	7,000	7,000	7,000
Potter Lumber Co. (80 KW)	8,152)			
Potter Lumber Co. (90 KW)	10,160)	18,000	18,000	18,000
Edgerton Planing Mill (110 KW)	179,760	150,000	150,000	150,000
Edgerton Sawmill (300 KW)	268,201	220,000	220,000	220,000

* Includes Public Buildings.